

AMENDMENT TO CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application.

Listing of Claims:

Claims 1 - 18 (canceled).

19. (Previously Presented) A wireless digital audio system, comprising:

at least one audio source;

at least one digital audio transmitter operatively coupled to said at least one audio source, said at least one audio transmitter comprising:

a first analog low pass filter receiving audio output from said at least one audio source;

a digital low pass filter;

an analog-to-digital converter (ADC) operatively coupled between said first analog and digital low pass filters;

a first encoder receiving output from said digital low pass filter and being configured to reduce intersymbol interference (ISI);

a second channel encoder operatively coupled to said first encoder and adapted to reduce transmission errors;

a digital modulator operatively coupled to said second channel encoder;

and

a differential phase shift key (DPSK) module receiving output from said digital modulator and being configured for direct sequence spread spectrum (DSSS) communication, said DPSK module transmitting a corresponding DSSS signal;

at least one audio receiver configured for digital wireless communication with said at least one audio transmitter and utilizing embedded fuzzy logic to optimize digital signal processing, said at least one audio receiver comprising:

a band pass filter (BPF) configured to process said transmitted DSSS signal;

a direct conversion module receiving output from said BPF and being configured to capture the correct bit sequence embedded in said processed DSSS signal;

a digital demodulator adapted to process output from said direct conversion module;

a Viterbi decoder operatively coupled to said digital demodulator and generating a corresponding digital output;

a source decoder processing said digital output from said Viterbi decoder and being configured to decode the digital signal encoded by said first encoder;

a second analog low pass filter; and

a digital-to-analog converter (DAC) operatively coupled between said source decoder and said second analog low pass filter, said second analog low pass filter generating an audio output corresponding to the decoded and converted digital signal;

and

at least one module adapted to reproduce said generated audio output, said audio output having been wirelessly transmitted from said at least one audio source to a user without interference from other users or wireless devices.

20. (Previously Presented) The wireless digital audio system of Claim 19, wherein said BPF is a wideband BPF.

21. (Previously Presented) The wireless digital audio system of Claim 19, wherein said modulator is a 64-Ary modulator.

22. (Previously Presented) The wireless digital audio system of Claim 19, wherein said demodulator is a 64-Ary demodulator.

23. (Previously Presented) The wireless digital audio system of Claim 19, wherein said generated audio output is in the approximate range of 20 Hz to 20 kHz.

24. (Previously Presented) The wireless digital audio system of Claim 19, wherein said spread spectrum signal is transmitted at about 2.4 GHz via an omnidirectional antenna.

25. (Previously Presented) The wireless digital audio system of Claim 24, wherein said spread spectrum signal is transmitted at a power of about 100 milliwatts or

less.

26. (Previously Presented) The wireless digital audio system of Claim 19, wherein said ADC is a 4-bit analog-to-digital converter.

27. (Previously Presented) The wireless digital audio system of Claim 19, wherein said at least one audio source is a portable audio player.

28. (Previously Presented) The wireless digital audio system of Claim 19, wherein said at least one audio reproducing module includes at least one headphone speaker.

29. (Previously Presented) The wireless digital audio system of Claim 19, wherein said BPF is operatively coupled to at least one antenna configured to receive said transmitted DSSS signal.

30. (Previously Presented) A wireless digital audio system, comprising:
at least one audio source;
at least one digital audio transmitter operatively coupled to said at least one audio source, said at least one audio transmitter comprising:
a first analog low pass filter receiving audio output from said at least one audio source;

a digital low pass filter;

an analog-to-digital converter (ADC) operatively coupled between said first analog and digital low pass filters;

a first encoder receiving output from said digital low pass filter and being configured to reduce intersymbol interference (ISI);

a second channel encoder operatively coupled to said first encoder and adapted to reduce transmission errors;

a digital modulator operatively coupled to said second channel encoder; and

a differential phase shift key (DPSK) module receiving output from said digital modulator and being configured for direct sequence spread spectrum (DSSS) communication, said DPSK module transmitting a corresponding DSSS signal;

at least one audio receiver configured for digital wireless communication with said at least one audio transmitter and utilizing embedded fuzzy logic to optimize digital signal processing, said at least one audio receiver comprising:

a band pass filter (BPF) configured to process said transmitted DSSS signal;

a direct conversion module receiving output from said BPF and being configured to capture the correct bit sequence embedded in said processed DSSS signal;

a digital demodulator adapted to process output from said direct conversion module;

a Viterbi decoder operatively coupled to said digital demodulator and

generating a corresponding digital output;

a source decoder processing said digital output from said Viterbi decoder and being configured to decode the digital signal encoded by said first encoder;

a second analog low pass filter; and

a digital-to-analog converter (DAC) operatively coupled between said source decoder and said second analog low pass filter, said second analog low pass filter generating an audio output corresponding to the decoded and converted digital signal;

at least one module adapted to amplify said generated audio output; and

at least one module adapted to reproduce said amplified audio output, said audio output having been wirelessly transmitted from said at least one audio source to a user without interference from other users or wireless devices.

31. (Previously Presented) The wireless digital audio system of Claim 30, wherein said at least one audio amplifying module includes at least one power amplifier, said at least one power amplifier being configured to provide a low distortion audio signal output.

32. (Previously Presented) The wireless digital audio system of Claim 31, wherein said at least one audio reproducing module includes at least one headphone speaker, said at least one headphone speaker receiving said low distortion audio signal output from said at least one power amplifier.

33. (Previously Presented) A wireless digital audio system, comprising:

- at least one audio source;
- at least one digital audio transmitter operatively coupled to said at least one audio source;
- at least one audio receiver adapted for digital wireless communication with said at least one audio transmitter, each of said at least one digital audio transmitter and receiver being configured for code division multiple access (CDMA) communication;
- and
- at least one module adapted to audibly reproduce said processed CDMA signal, said CDMA communication configuration providing a user with independent audio reproduction free of interference from other users or wireless devices.

34. (Previously Presented) A wireless digital audio system, comprising:

- at least one audio source;
- at least one digital audio transmitter operatively coupled to said at least one audio source;
- at least one audio receiver adapted for digital wireless communication with said at least one audio transmitter, each of said at least one digital audio transmitter and receiver being configured for code division multiple access (CDMA) communication;
- at least one module adapted to amplify said processed CDMA signal; and
- at least one module adapted to audibly reproduce said amplified signal, said

CDMA communication configuration providing a user with independent audio reproduction free of interference from other users or wireless devices.

Claims 35 - 36 (canceled).

37. (Previously Presented) The wireless digital audio system of Claim 33, wherein said at least one audio source provides analog output in the approximate range of 20 Hz to 20 kHz.

38. (Previously Presented) The wireless digital audio system of Claim 34, wherein said at least one audio source provides analog output in the approximate range of 20 Hz to 20 kHz.

Claims 39 - 40 (canceled).

41. (Previously Presented) The wireless digital audio system of Claim 33, wherein at least one of said digital audio transmitter and receiver is battery-powered.

42. (Previously Presented) The wireless digital audio system of Claim 34, wherein at least one of said digital audio transmitter and receiver is battery-powered.

43. (Previously Presented) A wireless digital audio system, comprising:

at least one audio source;

at least one digital audio transmitter operatively coupled to said at least one audio source, said at least one audio transmitter comprising:

a first analog low pass filter receiving audio output from said at least one audio source;

a digital low pass filter;

an analog-to-digital converter (ADC) operatively coupled between said first analog and digital low pass filters;

a first encoder receiving output from said digital low pass filter and being configured to reduce intersymbol interference (ISI);

a second channel encoder operatively coupled to said first encoder and adapted to reduce transmission errors;

a digital modulator operatively coupled to said second channel encoder;
and

a differential phase shift key (DPSK) module receiving output from said digital modulator and being configured for direct sequence spread spectrum (DSSS) communication, said DPSK module transmitting a corresponding DSSS signal;

at least one audio receiver configured for digital wireless communication with said at least one audio transmitter, said at least one audio receiver comprising:

a band pass filter (BPF) configured to process said transmitted DSSS signal;

a direct conversion module receiving output from said BPF and being

configured to capture the correct bit sequence embedded in said processed DSSS signal;

a digital demodulator adapted to process output from said direct conversion module;

a Viterbi decoder operatively coupled to said digital demodulator and generating a corresponding digital output;

a source decoder processing said digital output from said Viterbi decoder and being configured to decode the digital signal encoded by said first encoder;

a second analog low pass filter; and

a digital-to-analog converter (DAC) operatively coupled between said source decoder and said second analog low pass filter, said second analog low pass filter generating an audio output corresponding to the decoded and converted digital signal; and

at least one module adapted to reproduce said generated audio output, said audio output having been wirelessly transmitted from said at least one audio source to a user without interference from other users or wireless devices.

44. (Previously Presented) A wireless digital audio system, comprising:

at least one audio source;

at least one digital audio transmitter operatively coupled to said at least one audio source, said at least one audio transmitter comprising:

a first analog low pass filter receiving audio output from said at least one audio source;

a digital low pass filter;

an analog-to-digital converter (ADC) operatively coupled between said first analog and digital low pass filters;

a first encoder receiving output from said digital low pass filter and being configured to reduce intersymbol interference (ISI);

a second channel encoder operatively coupled to said first encoder and adapted to reduce transmission errors;

a digital modulator operatively coupled to said second channel encoder;

and

a differential phase shift key (DPSK) module receiving output from said digital modulator and being configured for direct sequence spread spectrum (DSSS) communication, said DPSK module transmitting a corresponding DSSS signal;

at least one audio receiver configured for digital wireless communication with said at least one audio transmitter, said at least one audio receiver comprising:

a band pass filter (BPF) configured to process said transmitted DSSS signal;

a direct conversion module receiving output from said BPF and being configured to capture the correct bit sequence embedded in said processed DSSS signal;

a digital demodulator adapted to process output from said direct conversion module;

a Viterbi decoder operatively coupled to said digital demodulator and generating a corresponding digital output;

a source decoder processing said digital output from said Viterbi decoder and being configured to decode the digital signal encoded by said first encoder;

a second analog low pass filter; and

a digital-to-analog converter (DAC) operatively coupled between said source decoder and said second analog low pass filter, said second analog low pass filter generating an audio output corresponding to the decoded and converted digital signal;

at least one module adapted to amplify said generated audio output; and

at least one module adapted to reproduce said amplified audio output, said audio output having been wirelessly transmitted from said at least one audio source to a user without interference from other users or wireless devices.

45. (Previously Presented) The wireless digital audio system of Claim 43, wherein said at least one audio source provides analog output in the approximate range of 20 Hz to 20 kHz.

46. (Previously Presented) The wireless digital audio system of Claim 44, wherein said at least one audio source provides analog output in the approximate range of 20 Hz to 20 kHz.

47. (Previously Presented) The wireless digital audio system of Claim 43, wherein at least one of said digital audio transmitter and receiver is battery-powered.

48. (Previously Presented) The wireless digital audio system of Claim 44, wherein at least one of said digital audio transmitter and receiver is battery-powered.

49. (Previously Presented) The wireless digital audio system of Claim 43, wherein said at least one audio source is a portable music player.

50. (Previously Presented) The wireless digital audio system of Claim 44, wherein said at least one audio source is a portable music player.

51. (Previously Presented) A wireless digital audio transmitter, comprising:

- a first analog low pass filter receiving audio output from at least one audio source;
- a digital low pass filter;
- an analog-to-digital converter (ADC) operatively coupled between said first analog and digital low pass filters;
- a first encoder receiving output from said digital low pass filter and being configured to reduce intersymbol interference (ISI);
- a second channel encoder operatively coupled to said first encoder and adapted to reduce transmission errors;
- a digital modulator operatively coupled to said second channel encoder;

and

a differential phase shift key (DPSK) module receiving output from said digital modulator and being configured for direct sequence spread spectrum (DSSS) communication, said DPSK module transmitting a corresponding DSSS signal.

52. (Previously Presented) A wireless digital audio receiver, comprising:

- a band pass filter (BPF) configured to process a transmitted DSSS signal;
- a direct conversion module receiving output from said BPF and being configured to capture the correct bit sequence embedded in said processed DSSS signal;
- a digital demodulator adapted to process output from said direct conversion module;
- a Viterbi decoder operatively coupled to said digital demodulator and generating a corresponding digital output;
- a source decoder receiving said digital output from said Viterbi decoder and being configured to decode the digital signal encoded therein;
- a second analog low pass filter; and
- a digital-to-analog converter (DAC) operatively coupled between said source decoder and said second analog low pass filter, said second analog low pass filter generating an audio output corresponding to the decoded and converted digital signal, said audio output having been wirelessly transmitted to a user without interference from other users or wireless devices.

53. (Previously Presented) A wireless digital audio receiver utilizing embedded

fuzzy logic to optimize digital signal processing, comprising:

a band pass filter (BPF) configured to process a transmitted DSSS signal;

a direct conversion module receiving output from said BPF and being configured to capture the correct bit sequence embedded in said processed DSSS signal;

a digital demodulator adapted to process output from said direct conversion module;

a Viterbi decoder operatively coupled to said digital demodulator and generating a corresponding digital output;

a source decoder receiving said digital output from said Viterbi decoder and being configured to decode the digital signal encoded therein;

a second analog low pass filter; and

a digital-to-analog converter (DAC) operatively coupled between said source decoder and said second analog low pass filter, said second analog low pass filter generating an audio output corresponding to the decoded and converted digital signal, said audio output having been wirelessly transmitted to a user without interference from other users or wireless devices.